APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/691,649	10/17/2000	Alastair Hugh Chisholm	24522-716	3572

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EXAMINER
SINGH, NOEL K

ART UNIT	PAPER NUMBER
2153	5

DATE MAILED: 09/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

	Application N●	Applicant(s)
Office Action Summary	09/691,649	CHISHOLM ET AL.
	Examiner	Art Unit	
	Noel K Singh	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____ .

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-20_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-20_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _10/17/2000_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claims 1-20 are pending for examination.

Priority

1.   Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which

papers have been placed of record in the file. The effective filing date for the subject

matter defined in the pending claims in this application is May 17, 2000 as per foreign

application 0011935.4 (United Kingdom).

Claim Rejections - 35 USC § 112

2.   Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite

in that it fails to point out what is included or excluded by the claim language. This claim

is an omnibus type claim.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4.   Claims 1-9, 11-13, 15, 16 and 18-20 are rejected under 35 U.S.C. 102 (e) as being anticipated by Walker et al., US Patent No. 6,061,723

5.   In referring to claim 1, Walker et al discloses a network management apparatus that has a method (Fig.1 netmon which resides on the network management station (NMS) and polls a plurality of network interfaces associated with a plurality of network elements on the network through interface N.1) for identifying an event (poll failure from a broken network element – a broken element is termed a criticalFailure and is the root cause of the plurality of events in the criticalRoute path) among a plurality of events (poll failures from inaccessible network elements; poll failures from broken network elements and successful polls) detected by a network management station (110, Fig. 1) on a network (100, Fig. 1), which event is indicative of the underlying cause (broken network element in a criticalRoute) of more than one of said plurality of events, wherein the network management station knows the topology (netmon discovers the topology of the

network) of the network (Fig. 1, and col. 5, line 35 through col. 6 line 28), comprising the

steps of:

- ☐ considering the location (analyzes the status of interfaces along the criticalRoute) of the network device causing each event in the plurality of events (col. 7, lines 21-25),

- ☐ and determining as said event, the event which has occurred at a location closest (Note: The primary failure event is inherently closest, to the NMS because all other failures on the same critical path are considered secondary. The secondary failure devices are inaccessible due to the failure of the primary device. Therefore, the secondary failure devices inherently come after the primary failure device along the critical path) to the network management station (Fig. 1 and col. 7, lines 25-67)

6.   In referring to claim 2, Walker et al Further discloses:

- ☐ a method as claimed in claim 1, wherein the step of considering the location comprises, for each event in the plurality of events, determining the number of devices and/or links (When netmon's ping of interface C.2 times-out, netmon examines the in-memory status of every interface along the critical path, starting at the NMS and progressing to interface C.2 that is causing the event. Each interface is part of the associated device and the link connecting it to other devices or to the network) between the

device causing the event and the network management station (Fig. 5, and col. 7, lines 47-53).

7.   In referring to claim 3, Walker et al further discloses:

  □ A method as claimed in claim 2, wherein the step of determining the number of devices and/or links between the device causing the event and the network management station comprises the steps of: determining the shortest path (The critical path can be computed even if the network contains loops because at the moment the computation is performed, there is only one route that a packet would take – this is inherently the shortest path) between the device causing the event and the network management station using the topology of the network and calculating the number of devices and/or links (Precedence is given to routes within the same network or subnet, and routes containing router nodes. Routers uses the number of links when calculating the path to a destination) in the determined shortest path (col. 6, lines 49-56).

8.   In referring to claim 4, Walker et al further discloses:

  □ A method as claimed in claim 2, further comprising the step of: receiving each event, and automatically determining (The topology is known, therefore netmon can automatically determine the number of interfaces) the number of devices and/or links (interfaces in the critical path) between

the device causing the event and the network management station (col. 6,

lines 22-48).

9.   In referring to claim 5, Walker et al further discloses:

  ❑   A method as claimed in claim 4, further comprising storing (examines the

      in-memory status of every interface) the determined number of devices

      and/or links (interfaces) between the device causing the event and the

      network management station for each event (col. 7, lines 47-59).

10.   In referring to claim 6, Walker et al further discloses:

  ❑   A method as claimed in claim 2, wherein the step of determining as said

      event comprises the step of: selecting as the event, the event for which

      the number of devices and/or links (interfaces along the critical path)

      between the device causing the event and the network management

      station, is the fewest (The algorithm will go through all the interfaces in the

      critical path once a poll has timed out and find the first interface failure in

      the path from the NMS to the failing interface. This will result in the fewest

      devices and/or links) (col. 6, line 36 through col.7 line 45).

11.   In referring to claim 7, Walker et al further discloses:

  ❑   A method as claimed in claim 1, wherein prior to the step of considering,

      the method comprises the step of: determining if said plurality of events

are related (if any interface along this path is Down), and if it is determined

that said plurality of events are related (secondaryFailure – these

interfaces are not the actual cause of the time-out pings, they are a

symptom of the actual cause), storing said plurality of related events in an

event list (slowPingList) (col.7, lines 47-59).

12.   In referring to claim 8, Walker et al further discloses:

❑   A method as claimed in claim 7, wherein the step of determining if the

plurality of events are related comprises determining the type (Not failing;

Primary Failure and Secondary Failure. The not failing ping represents

interfaces that are functioning normally; the Primary Failure events

represent a critical failure where the actual hardware or software has

failed and the Secondary Failure events represent interfaces that are

failing because of the critical failure) of event for each of the plurality of

events, and determining that said plurality of events are related if the

events are of a similar type (col.7, lines 32-45. Failure Classification list).

13.   In referring to claim 9, Walker et al further discloses:

❑   A method as claimed in claim 7, wherein the method further comprises:

receiving each event; and the step of determining if said plurality of events

are related comprises the steps of: for each event, determining the time

difference (this is automatic as the ping timeout value determines how

long to wait for a response before a timeout event occurs) between the

time of the received event (ping response) and the time of the immediately

preceding event (ping) (col. 8, lines 12-17),

❑ and determining that the received event is related to the immediately

preceding event if the time difference is less than a predetermined time

(ping time-out value) period (col. 8, lines 12-23).

14.   In referring to claim 11, Walker et al further discloses:

❑ A method as claimed in claim 9, wherein, if the received event is

determined to be related, the method further comprises the step: of storing

the event in a list of related events (the following lists are maintained: the

normal pingList; slowPingList and criticalRouteWaitList), and if the

received event is determined not to be related (When netmon's ping of

interface C.2 times-out), the method further comprises the steps of:

comparing (examines) the type of events in the existing list of related

events, and selecting events of a similar (secondary failure interfaces),

relevant type (Critical failure – this is the first failure in the critical path and

it is the relevant interface to examine) (col. 7, line 32 through col. 8, line

4).

15.   In referring to claim 12, Walker et al further discloses:

❑ A method as claimed in claim 7, wherein the method further comprises:

receiving each event; and the step of determining if said plurality of events

are related comprises the steps of: for each event, comparing the type of the received event (interfaces are UP – poll/ping successful for interface A.1) and the type of the immediately preceding event (poll), and determining that the received event is related to the immediately preceding event if the step of comparing (No interface Down events) finds the event type (response not a time-out) of the received event is similar to the event type (poll) of the immediately preceding event (col.6, line 65 through col. 7, line15).

16.   In referring to claim 13, Walker et al further discloses:

  ❑ A method as claimed in claim 7, wherein the method further comprises: receiving each event; and the step of determining if said plurality of events are related comprises the steps of: for each event, determining the time difference between the time of the received event (ping response) and the time of the immediately preceding event (ping), and comparing the type of the received event (ping response) and the type of the immediately preceding event (ping), and determining that the received event is related to the immediately preceding event if the time difference is less than a predetermined time period (ping time-out value) and the events are similar in type (ping and ping response) (col. 8, lines 12-23)..

17.   In referring to claim 15, Walker et al further discloses:

❑ A method as claimed in claim 7, further comprising the steps of, receiving each event; automatically determining if the event is related to the immediately preceding event (ping and ping responses are automatically related events), and if it is determined that the received event is related (no time-out), storing the received event in the event list (normal pingList) (col. 7 line 47 through col.8 line 4).

18.   In referring to claim 16, Walker et al further discloses:

❑ A method as claimed in claim 15, wherein, if it is determined that the event is not related (interface C.2 is inaccessible because of a ping time-out) to the immediately preceding event (ping), the method further comprises storing the received event in a new event list (a new queue called the critical-RouteWaitList) (col. 7 line 47 through col.8 line 4).

19.   In referring to claim 20, Walker et al further discloses:

❑ A network management apparatus for managing a network, comprising a network management station (110, Fig.1) having a processor (No details was given for the network management station, but US Patent 5,185,860 Fig. 1, which is incorporated into this patent by reference, shows a processing element) and memory (topology Database in Fig. 1), the memory storing data representing the topology of the network (Fig. 1 and col.5, lines 35-51),

□ wherein the network management station is configured to monitor (network monitor) the network and to generate events (periodically polling) in finding predefined event conditions (not responding to a poll); wherein the network management station is further configured to identify (Not Failing; Primary Failure and Secondary Failure) an event among a plurality of events generated by the network management station (col. 5, lines 41-63 and col. 7, lines 32-45),

□ which event is indicative of the underlying cause (the primaryFailure interface is the underlying cause because its own Hardware or Software failed) of more than one of said plurality of events, by considering the location (analyzes the status of interfaces along the critical path) of the network device causing each event in the plurality of events, and determining as said event, the event which has occurred at a location closest (Note: The primary failure event is inherently closest, to the NMS because all other failures on the same critical path are considered secondary. The secondary failure devices are inaccessible due to the failure of the primary device. Therefore, the secondary failure devices inherently come after the primary failure device along the critical path) to the network management station (col. 7, lines 8-60).

20. Claims 18 and 19 are similar in scope as of claim 1, therefore claims 18 and 19 are rejected for the reason set forth above in paragraph 5 for claim 1.

Claim Rejections - 35 USC § 103

21.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

22.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walker

et al., in view of Moghe, US Patent 6,173,323.

23.   Although the system disclosed by Walker et al., shows substantial features of the

claimed invention (discussed above), Walker et al., does not explicitly disclose the

predetermined time between a received event and the immediately preceding event as

being in the range of 0 seconds to 5 minutes.

24.   In an analogous art, Moghe discloses an adaptive polling rate algorithm for

network monitoring that starts at an initial rate of 10 seconds and increases to 80

seconds (1.33 minutes which is within the 0 seconds to 5 minutes range) (col. 2, lines

23-38). Moghe further states: " These initial parameters are typically based on

engineering criteria" (col. 2, lines 27-28). Criteria can be the size of the network; the

speed of the links etc., which can increase the initial rate from 10 seconds to a larger

number.

25.   At the time of the invention, it would have been obvious to a person of ordinary

skill in the art to combine the polling rate of Moghe with Walker et al. The suggested

motivation for doing so would have been to adapt the polling scheme to take into

account the network traffic congestion due to failures in the network.

Therefore, it would have been obvious to combine Walker et al., with Moghe to

obtain the invention as claimed in claim 10.

26.   Claim 14 is similar in scope as of claim 10, therefore claim 14 is rejected for the

reasons set forth above in paragraphs 23 – 25 for claim 10.

Conclusion

27.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

- Wu, U.S. Patent 5,185,860. Wu discloses a computer network node

  discovery system that provides a general way of discovering network

  elements, or nodes, connected to a computer network.

- Besaw et al., U.S. Patent 5,276,789. Besaw et al. disclose a system for

  automatically laying out and graphically displaying the topology of a

  computer network.

28.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Noel K Singh whose telephone number is (703)305-

4651. The examiner can normally be reached on 8 A.M. to 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Glenton B Burgess can be reached on (703)305-4792. The fax phone

numbers for the organization where this application or proceeding is assigned are

(703)305-7201 for regular communications and (703)305-7201 for After Final

communications.

        Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703)305-

3900.

N.S.
September 2, 2003
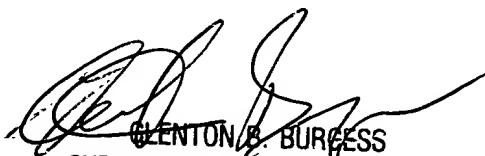
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